



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,442	01/30/2004	Eiichi Sato	WILL.0004	7205
7590	09/08/2005		EXAMINER	
REED SMITH LLP Suite 1400 3110 Fairview Park Drive Falls Church, VA 22042				DUONG, THOMAS
			ART UNIT	PAPER NUMBER
			2145	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

	Application No.	Applicant(s)
	10/767,442	SATO, EIICHI
Examiner	Art Unit	
Thomas Duong	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 04 January 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1, 5-7, and 9-13 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1, 5-7, and 9-13 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 1/30/04, 1/4/05.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities:

- ... and for causing causes the migration destination..."

Please make the appropriate correction.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5-7, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamura et al. (US 20040049553A1) and in view of Ofek et al. (US006108748A).

4. With regard to claims 1, 11, and 13, Iwamura discloses,

- *means for causing the migration destination file sharing device to inherit, prior to data migration, network environment information for identifying the migration source file sharing device on the communications network; (Iwamura, pg.4, para.56-61; fig.3)*

Iwamura teaches "*before the data migration, the migration source storage system 100 is assigned Address A as the IP address*" (Iwamura, pg.4, para.56),

"next, the IP address which has been assigned to the migration source storage subsystem 100 will be changed from such Address A ... to such a different Address B" (Iwamura, pg.4, para.59), "next, the IP address of the migration target storage subsystem 110 will be assigned to Address A" (Iwamura, pg.4, para.60) making it "possible to obtain access to the migration target storage subsystem 110 through the use of the Address A" (Iwamura, pg.4, para.56). In addition, Iwamura teaches "in the migration target storage subsystem 110, there will be provided the same storage area ... as the storage area ... which the migration source storage subsystem 100 has (copy of configuration 321)" (Iwamura, pg.4, para.57). Hence, Iwamura teaches of the migration destination inheriting the configuration and network identification information of the migration source before the migration.

However, Iwamura does not explicitly disclose,

- *means for causing access from the host computer to be switched from the migration source file sharing device to the migration destination file sharing device;*
- *means for detecting the migration status of data to which access has been requested by the host computer;*
- *means for providing the data from the file system of the migration destination file sharing device in a case where the detected migration status of the data is a status where the data can be used from the file system of the migration destination file sharing device; and*
- *means for providing the data from the file system of the migration source file sharing device in a case where the detected migration status of the data is a*

status where the data cannot be used from the file system of the migration destination file sharing device.

Ofek teaches,

- *means for causing access from the host computer to be switched from the migration source file sharing device to the migration destination file sharing device; (Ofek, col.2, lines 49-52; col.7, lines 7-17)*

Ofek teaches “*in the case of a read operation, [the] second data storage device examines the data map or table to determine whether or not the data has been migrated to and is stored on the second data storage device*” (Ofek, col.2, lines 49-52). Hence, Ofek teaches of a decision step to determining the location of the requested data (e.g., migrated data located on the second or destination storage system or data not migrated located on the first or source storage system) in order to respond appropriately.

- *means for detecting the migration status of data to which access has been requested by the host computer; (Ofek, col.2, lines 49-52; col.7, lines 7-17)*

Ofek teaches “*in the case of a read operation, [the] second data storage device examines the data map or table to determine whether or not the data has been migrated to and is stored on the second data storage device*” (Ofek, col.2, lines 49-52). Hence, Ofek teaches of a decision step to determining the location of the requested data (e.g., migrated data located on the second or destination storage system or data not migrated located on the first or source storage system) in order to respond appropriately.

- *means for providing the data from the file system of the migration destination file sharing device in a case where the detected migration status of the data is a*

status where the data can be used from the file system of the migration destination file sharing device; and (Ofek, col.2, lines 52-54; col.7, lines 22-26)

Ofek teaches "*if it is determined that the data is stored on the second data storage device, the data is made available to the requesting device*" (Ofek, col.2, lines 52-54). Hence, Ofek teaches of making the requested data available to the requesting device from the second or destination storage system if the data has been migrated to it.

- *means for providing the data from the file system of the migration source file sharing device in a case where the detected migration status of the data is a status where the data cannot be used from the file system of the migration destination file sharing device. (Ofek, col.2, lines 55-61; col.7, lines 27-46)*
Ofek teaches "*if the data is not stored on the second data storage device, the second data storage device issues a data request, in form of a read data command, to the first data storage device, obtains the data and makes the data available to the requesting device*" (Ofek, col.2, lines 55-59). Hence, Ofek teaches of making the requested data available to the requesting device from the first or source storage system if the data has not been migrated.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Ofek with the teachings of Iwamura to "*[allow for] data migration between a first data storage system and a second data storage system while the database is open and a real-time data migration that is completely transparent to the host or data requesting device*" (Ofek, col.12, lines 12-16). Furthermore, Iwamura states "*data management for, for example, an I/O request from the host during data migration may be performed as*

described in, for example, the U.S. Pat. No. 6,108,748... [By] referring to a bit flag of this bit map, it is determined whether or not the data block has been transferred. If the data block requested from the host is not transferred to the migration transfer target storage subsystem, the I/O request may be transferred to the original storage subsystem to read the data block from there for transmitting to the host" (Iwamura, pg.3, para.50).

5. With regard to claims 5-7, Iwamura and Ofek disclose,

- *further comprising means for updating the network environment information of the migration source file sharing device to other values after starting the migration destination file sharing device on the basis of temporary setting-use network environment information, and for causing causes the migration destination file sharing device to inherit the updated network environment information of the migration source file sharing device. (Iwamura, pg.4, para.56-61; fig.3; Iwamura, col.2, lines 59-61, col.7, lines 48-55, col.7, line 59 – col.8, line 7)*
- *further comprising monitoring means for monitoring whether or not the network environment information of the migration source file sharing device has been updated to the other values. (Iwamura, pg.4, para.56-61; fig.3; Iwamura, col.2, lines 59-61, col.7, lines 48-55, col.7, line 59 – col.8, line 7)*
- *wherein the inheriting of the network environment information from the migration source file sharing device and the updating of the network environment information of the migration source file sharing device are respectively conducted by remote control. (Iwamura, pg.6, para.103; fig.1)*

6. With regard to claim 9, Iwamura and Ofek disclose,

- *further including use frequency detecting means that detects the use frequency of data that cannot be used from the file system of the migration destination file sharing device, wherein data migrating priority is given to data whose use frequency detected by the use frequency detecting means is equal to or greater than a predetermined value.* (Ofek, col.3, line 55 – col.4, line 4)

7. With regard to claim 10, Iwamura and Ofek disclose,

- *wherein data migration statuses include*
 - *a first migration status representing a status where migration of data from the file system of the migration source file sharing device to the file system of the migration destination file sharing device has not been conducted,* (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)
 - *a second migration status representing a status where data is migrating from the file system of the migration source file sharing device to the file system of the migration destination file sharing device,* (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)
 - *a third migration status representing a status where migration of data from the file system of the migration source file sharing device to the file system of the migration destination file sharing device has been completed,* and (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25

- col.9, line 27, col.9, lines 45-67, col.10, lines 14-58) *a fourth migration status representing a status where data is being provided from the file system of the migration source file sharing device; and*
- *in the case of the first migration status, a migration status of data to which access has been requested is changed to the fourth migration status, provides the data from the file system of the migration source file sharing device, and thereafter returns the migration status of the data to the first migration status, (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)*
- *in the case of the second migration status, the data from the file system of the migration source file sharing device is provided in a read-only mode, (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)*
- *in the case of the third migration status, the data from the file system of the migration destination file sharing device is provided, and (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)*
- *in the case of the fourth migration status, the data from the file system of the migration source file sharing system is provided in the read-only mode and thereafter the migration status of the data is changed to the first migration status. (Ofek, col.2, lines 55-61; col.7, lines 27-46, col.8, line 25 – col.9, line 27, col.9, lines 45-67, col.10, lines 14-58)*

8. With regard to claim 12, Iwamura and Ofek disclose,

- *wherein the step of causing access from the host computer to be switched to the migration destination file sharing device is one that causes access from the host computer to be switched from the migration source file sharing device to the migration destination file sharing device without changing network connection information that is set in the host computer.* (Iwamura, pg.4, para.56-61; fig.3)

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- O'Connell et al. (US 20030182257A1) relates to a method and system for migrating data from original host storage systems to replacement host storage systems. More particularly, the invention relates to a method and system of achieving such migration while maintaining hard links between files related to the data.
- Sakaki et al. (US006230239B1) relates to the process of data migration between storage systems. More particularly, the present invention relates to a method, apparatus and computer program for use in a system that performs data migration between storage systems for causing the system to accept access to the storage systems even though data migration between the storage systems has not been completed.
- Sakaki et al. (US006374327B2) relates to the process of data migration between storage systems. More particularly, the present invention relates to a method, apparatus and computer program for use in a system that performs data

migration between storage systems for causing the system to accept access to the storage systems even though data migration between the storage systems has not been completed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Duong whose telephone number is 571/272-3911. The examiner can normally be reached on M-F 7:30AM - 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on 571/272-6159. The fax phone numbers for the organization where this application or proceeding is assigned are 703/872-9306 for regular communications and 703/872-9306 for After Final communications.

Thomas Duong (AU2145)

September 1, 2005



RUPAL DHARIA
SUPERVISORY PATENT EXAMINER